Odisha Geography

LOCATION

→ South-North Extent - 17°49'N latitude to 22°34'N latitude (500km)
latitudinal extent

→ West-East Extent - 81°27'E to 87°29'E (1030km)

→ IST passes through 4 districts of Odisha - Nuapada (82°30'E)
Nabarangpur, Koraput and Malkangiri.
Nua Malika re Kotia Naba Ranga

→ Total land area - 155,707 km² (4.74% of India's total area)

→ Odisha is located in the eastern part of the Indian peninsula and the Bay of Bengal lies to the east.

→ Odisha is surrounded by 4 states :-
- ✓ Chattisgarh - to the west and north-west
- ✓ Jharkhand - to the North
- ✓ Andhra Pradesh - to the South
- ✓ West Bengal - to the East and North east

→ Chattisgarh makes the longest border with Odisha touching the borders of 8 districts :-
Malkangiri, Koraput, Nabrangpur, Kalahandi, Nuapada Bargarh, Jharsuguda, Sundargarh.

→ Coastline of Odisha – 480km

→ Smallest border is with West Bengal. Only two districts make the border here –
Mayurbhanj, Balasore

→ Jharkhand has border with three districts –
Mayurbhanj, Keonjhar, Sundergarh

→ Andhra Pradesh has border with five district of Odisha – Malkangiri, Koraput, Rayagada, Gajapati and Ganjam.

→ Total no. of districts making border with other states – (14)

→ The district surrounded by maximum no. of other districts – Angul (9 districts)

→ Coastline of Odisha is 480km. 6 districts makes the coastline – Ganjam, Puri, Jagatsingpur, Kendrapada, Bhadrak, Balasore.

→ Puri – longest coastline
Bhadrak – smallest coastline

→ Chilika Lake the largest lagoon in Asia and the first Ramsar site in India is bordered by 3 districts – Ganjam, Khordha and Puri

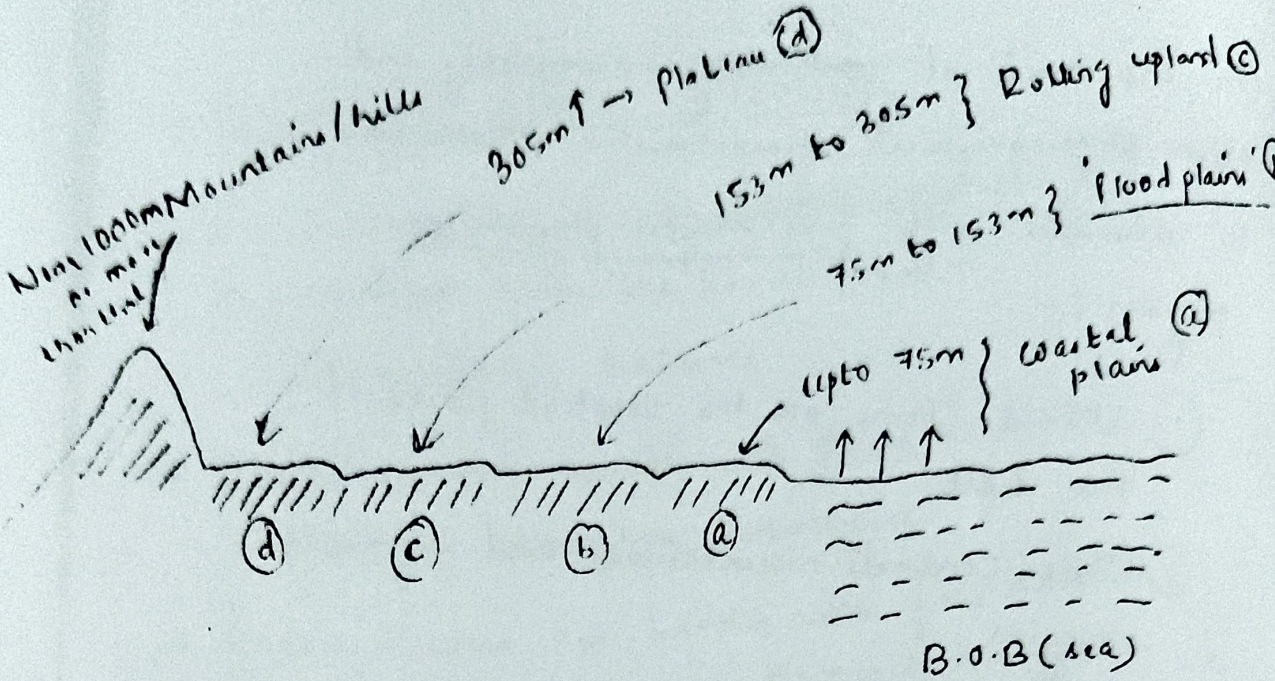
PHYSIOGRAPHY OF ODISHA

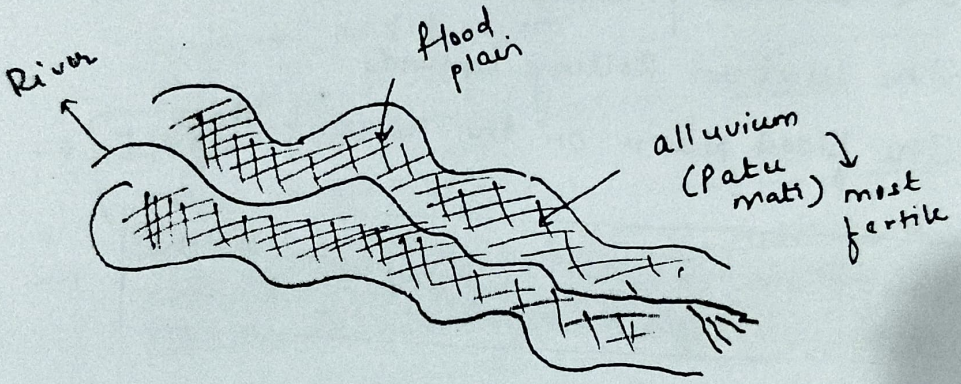
On the basis of continuity, homogeneity and other physiographical characteristics, Odisha can be divided into five major physiographic regions :-

1. Utkal Plains on the coastal plains of the East
2. The central mountainous and highlands region.
3. The central plateaus
4. The Western Rolling uplands
5. The flood plains on the river valleys

1. Utkal Plains on the coastal plains of the East

- The coastal plains of Odisha are depositional landforms of recent origin and geologically belongs to the Tertiary / Post Tertiary period (approx 66 million to 2.6 million yrs ago).
- Average altitude - 75m. This region stretches from Subarnarekha basin in the north to the Rushikulya basin in the south.

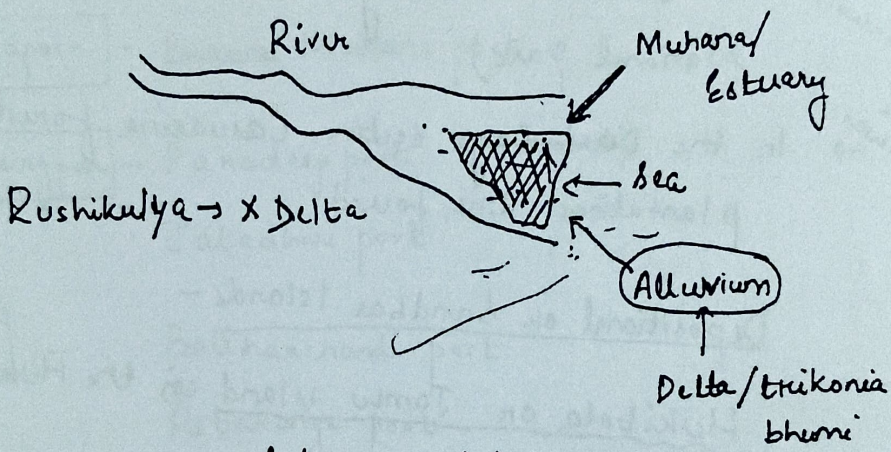




- A major part of this region is formed by deltas of the six major rivers i.e the Mahanadi, the Brahmani, the Budhabalanga, the Subarnarekha, the Baitarani, and the Rushikulya. This has given rise to the names such as the "Gift of Six Rivers" or "the Hexadeltaic region".

- It spans along the coast of the Bay of Bengal with the maximum width near the Mahanadi Delta (the middle coastal plain)

- It is narrower in the Northern coastal plain in Balasor district (also called Balasore plain) and narrowest in the Southern coastal plain in Ganjam district (called Ganjam plain).



Descending rivers of their contribution to the formation of coastal plains :-

1. Mahanadi
2. Brahmani
3. Baitarini
4. Subarnarekha
5. Budhabalanga
6. Rushikulya (no delta)

Salt tract -

The Salt tract is a narrow belt which stretches just beyond the shoreline for about 4.8 km to 9.6 km in land.

→ In Mahanadi Delta, this salt tract is covered with tidal mangrove forests, known as little sundarbans (Paradeep to Dhamra including the Bhitarkanika National park)

Debi to Brahmani-Baitarni → little Sundarban

→ In the Devi–Daya sector, Casuarina forest plantations are found.

Depositional or Sandbar Islands -

- Hukitola or Jambu Island in the Hukitola Bay, Kendrapara
- Karika Island and Shortt's Island near Dhamra, Bhadrak
- Wheeler Island – Bhadrak (Missile testing facility)

Ports

→ Paradeep (Jagatsingpur) is an artificial port & harbour of India

→ Chandbali and Dhamra (Bhadrak) and Gopalpur (Ganjam) are medium & minor Odis

Balasore – Talasar port
Kuntara port (Subarnarekha)
Bahabalpur port
Chandipur port (Budhabalanga)
Inchudi port
Chudamari port

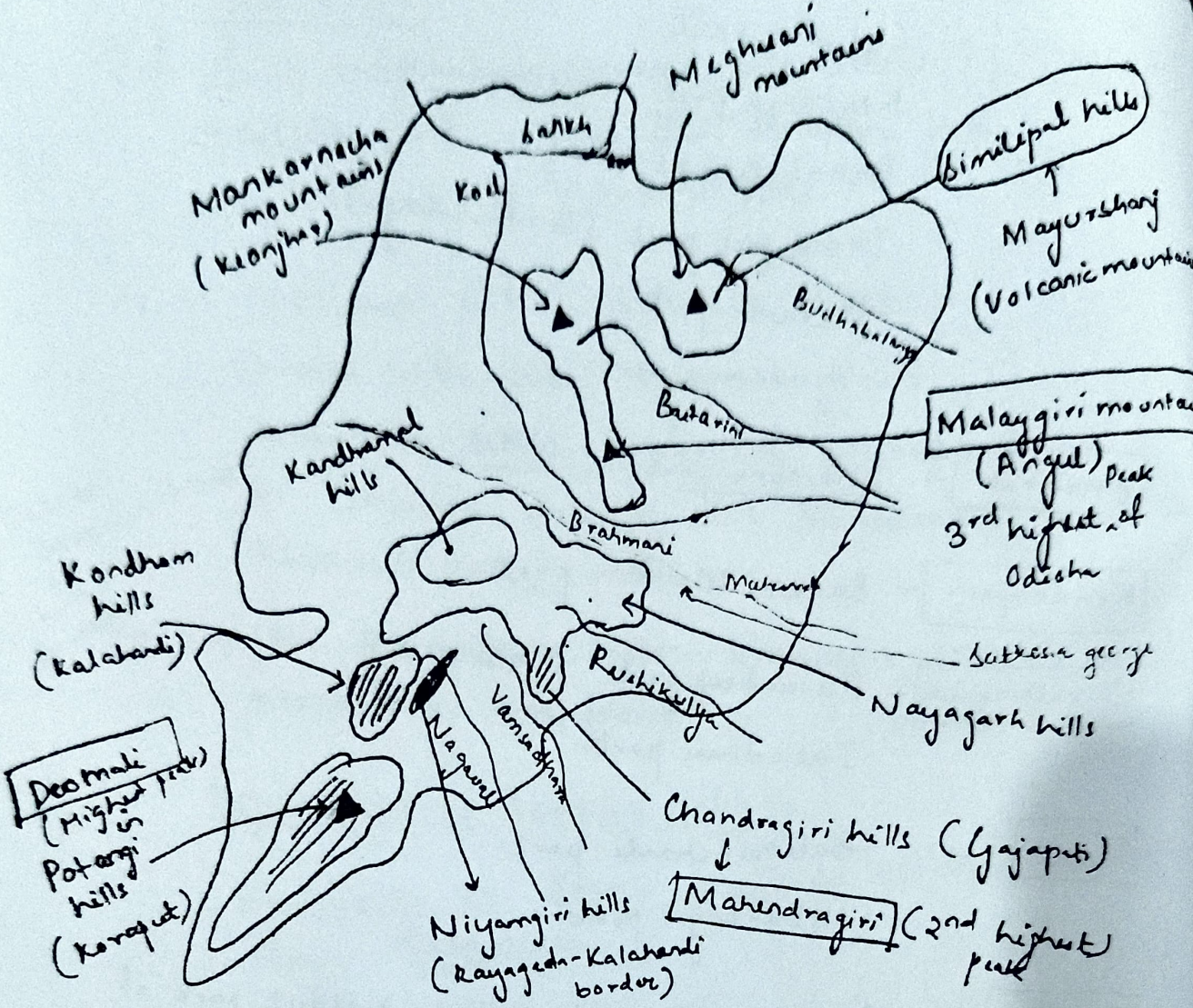
Bhadrak – Dhamara port

Kendrapara – Barunei Muhana port

Jagatsingpur – Paradeep port (Mahanadi)
Jatadhari port

Puri – Balichanchardi port
Astaranga port

Ganjam – Palur port (Rushikulya) oldest port of Odisha
Gopalpur port
Bahuda Muhana port



(2). MOUNTAINOUS REGIONS OF ODISHA

→ The mountainous region covers about 3/4th of the area of the state

→ It was previously a part of the ancient landmass called Gondwana land.

→ The rivers like Baitarani, Brahmani, Mahanadi, Rushikulya, Vamsadhara and Nagavali cut deep and broad valley through these mountains.

These mountainous regions are morphologically divided into following regions :-

(A) Similipal - Meghasani mountains of Mayurbhanj district
River - Budhabalanga, Salandi
Tributary of Baitarini

→ This is typically a dome shapped mountain and are volcanic in origin

→ Meghasani is the highest peak of this region

(B) The Mankarnacha - Malayagiri mountains of the Baitarani and Brahmani interfluves → watershed

→ This group of mountains with three lofty peaks extends in a north - south direction.

(C) Watershed b/w Brahmani and Mahanadi

The evolution of these mountains is similar in character with that of the former region. But these are more maturely dissected by continued action of Mahanadi and the Brahmani

(D) The common interfluves of the Mahanadi: The Rushikulya and the Vamsadhara

This watershed is deeply eroded and the height varies from 600 to 1000 meters in elevation. This interfluve stretches in the north-south direction with several peaks rising above 1200 mts.

(E) The Potangi and Chandragiri mountain ranges

→ These mountain ranges are highest in Odisha and the average height varies from 900 to 1350 mts.

→ The deomali peak is the highest in Odisha with an elevation of 1672 mts, and is the tallest in the whole eastern ghats.

→ The mountains completely separate the Nagavali and the Sabari basins.

→ They are highly dissected and in the valleys terrace cultivation is practized. The hills are bare of vegetation because of shifting cultivation

Some important mountain peak of Odisha

Mahendragiri → Gajapati

Malayagiri → is a mountain peak in the malayagiri hills subrange of the Garhjat range. It is located near Palahara town near Angul.

Chandragiri hills → in Gajapati district is famous for ~~Little Tibet of Odisha~~ named Jinang (famous for Buddhist monastries and Tibetan settlements)

Potangi hills → in Koraput.

~~**Potangi hills**~~ - is a hill located in between Balangir and Bargarh districts of Odisha, India. This hill is well known for medicinal plants and Bauxite reserves

Gandhamardan Hills

Niyamgiri hills → is a hillrange situated in the districts of Kalahandi and Rayagada. These hills are home to Dongria Kondh indigenous people also known as Adivasi.

plateaus

→ The plateaus are part of the Western slopes of the Eastern ghats. They are mostly eroded plateaus with elevation varying from 305-610 meters.

→ There are 2 broad plateaus :-

• the Panposh-Keonjhar-Pallahara (Sundergarh) (Angul) (Pallahara)

comprising the upper Baitarani catchment basin in the northern part of the state.

• the Nabarangpur-Jeypore plateau

comprising the Sabari basin in the southern part of the state.

• Sunabeda plateau → Nuapada and Chattisgarh consisting of Sunabeda wildlife sanctuary

(4) WESTERN ROLLING UPLANDS

→ These have heights varying from 153 mts to 305 meters. These are lower in elevation than the plateaus.

→ It consists of the following geographic distinct uplands.

• The Rairangpur rolling upland →

This region encompass the northern part of the Mayurbhanj dist. The uplands are part of the Subarnarekha basins and slopes to the north.

- **The Keonjhar rolling upland** → This region is part of Keonjhar district and lies at the edge of Keonjhar plateau. It is a part of Baitarani river basin

- **The Rajgangpur- Panposh/ Rourkela rolling upland.**

  This is a part of Sundergarh district and lies in the upper Brahmani basin of Koel and Sankh rivers.

- **The Bargarh uplands** → of the Jiraand Jhaun river basin.

- **Bolangir- Titlagarh- Patnagarh uplands** of Northern Tel Basin.

- **Bhawanipatna uplands** → of southern Tel basin

- **The Aska rolling upland** → This is situated in Ganjam district on the upper Rushikulya basin.

- **The Rayagada rolling upland** → This upland is a part of the Rayagada district and lies on the Nagavali and the Vansadhara river basins.

- **The Malkangiri rolling upland** → located in the southern tip of Odisha. this upland is situated on the Sabari- Machhkund basins of the Pandakeraya region.

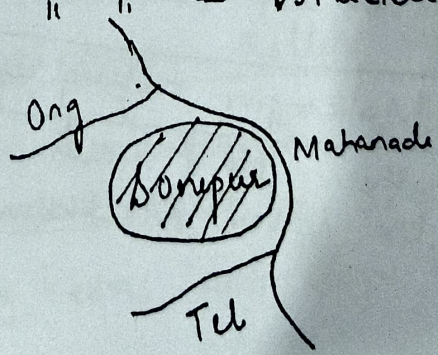
(5) THE FLOOD PLAINS

→ These flood plains are formed due to major rivers in the highlands, uplands and plateaus. The height varies from 75 to 153 m.

→ The 9 major flood plains of Odisha are:-

(i) Baripada flood plain – Budhabalanga (Mayurbhanj)
(ii) Anandapur " " – Baitarani (Keonjhar)
(iii) Talcher " " – Brahmani (Angul)
(iv) Bhuban " " – Brahmani (Dhenkanal)
(v) Sonepur " " – Mahanadi, Tel, Ong
(vi) Athagarh " " – Mahanadi (Athagarh)
(vii) Aska " " – Rushikulya, Bara (Ganjam)
(viii) Rayagada " " – Nagavali, Vansadhara
(ix) Malkangiri " " – Sileru

Bhuban → largest village of Asia



SOILS OF ODISHA

Soil of Odisha have been divided mainly 8 types of soil.

Red soils

→ Extends to the districts of Koraput, Rayagada, Nabrangpur, Malkangiri, Keonjhar, Ganjam, Kalahandi, Nuapada, Bolangir, Dhenkanal and Mayurbhanj.

Also called Omnibus group.

→ Maximum cover – 70% of the state covered by this soil – highest

* Ferric oxide

Laterite soils

→ occupy 0.70 million hectare of lands in the districts of Puri, Khurda, Nayagarh, Cuttack, Dhenkanal, Keonjhar, Mayurbhanj, Sambalpur.

→ majorly in high rainfall areas.

Red and Yellow soils

→ occur in the district of Sambalpur, Bargarh, Deogarh, Sundargarh.

Coastal salts affected alluvial soils

found in the districts of Balasore, Bhadrak, Jagatsingpur, Kendrapara, Puri, Khurda, Ganjam.

Deltaic alluvial soils

Cover 0.67 million hectare of lands and occur in the deltaic regions of the rivers such as Mahanadi, Brahamani, Baitarani, Subarnarekha and Rushikulya in the districts of Balasore, Bhadrak, Jajpur, Kendrapara, Jagatsingpur, Cuttack, Puri, Gajapati, Ganjam.

Black soils

→ Tropical Chernozems
→ Regur
→ Cotton soil

occur sporadically in the districts of Puri, Ganjam, Malkangiri, Kalahandi, Nuapada, Bolangir, Sonepur, Boudh, Sambalpur, Bargarh, Angul.

Mixed red and black soils

occupy about 0.16 million hectare of lands in the western districts of Sambalpur, Bargarh, Sonepur & Bolangir.

Brown forest soils

being associated with forest areas are distributed in the districts of Phulbani, Kandhamal Rayagada and parts of Ganjam and Nuapada.

Soil EROSION Type =, Coastal & sheet erosion

Top 3 waterfalls
1. Barehipani
2. Khandahar
3. Joranda

Waterfalls of Odisha

- Putudi – Salunki River (Tributary of mahanadi) – Phulbani
- Bada Ghagra – Macchakandana river (T of Baitarani) – Keonjhar
- Sana Ghagra – Macchakandana river (") – Keonjhar
- Khandahar – T of Brahmani – Sundargarh – Keonjhar
- Bhimkund – Baitarani – Keonjhar
- Barehipani – Budhabalanga – 1309 ft (399m) – Mayurbhanj
- Joranda – Budhabalanga – Mayurbhanj
- Debakunda – Mayurbhanj
- Duduma – Macchakunda river – Malkangiri

Miriglotha = Near Katla Iron mines → Sundargarh

[Springs of Odisha]

Jajpur
→ Chandikhole -- A tributary to Mahanadi - Natural spring

→ Barunei — Tributary to the Daya - Khurda

→ Narayani — Draining to Chilika - Puri

→ Nirmaljhar - Draining to Chilika - Khalikot, Ganjam

→ Pradharpat - A tributary to the Brahmani - Deogarh

→ Phuntigharan - A tributary to the Indravati - Kalahandi

→ Khandadhar - A tributary to Brahmani - Bonei, Sundergarh

→ Nursingh Nath - A tributary to the Tel - Bargarh

→ Harishankar - Jira river, a tributary to Tel - Bolangir

→ Gosinga Jhar - Kuaria Nala, a tributary to Mahanadi - Kantilo, ~~Khurda~~ Nayagarh

→ Koilijharan - A tributary to Mahanadi - Jharsuguda

→ Jharbada - Mankada river, a tributary to Brahmani. Malaygiri, Dhenkanal

→ Kapilash → Dhenkanal

Hot Springs of Odisha

- **Atri Hot Spring**
  Located in the village of Atri in Khurda district. It is a hot water sulphur wellhead.

- **Deulajhari Hot spring**
  A special natural phenomenon situated in the Angul district.

- **Tarabola Hot spring**
  Believed to have medicinal properties in its water, the spring is the largest thermal field in Nayagarh district.

- **Taptapani Hot spring**
  A famous tourist spot in Ganjam. Highest temperature. Deer park near the spring.

MAJOR MINERAL RESOURCES OF ODISHA

Top producers – Iron, Bauxite, Manganese, Nickel, Chromite

IRON ORE

✓ The Iron ore was first discovered in Odisha by PN Bose in 1904 in Mayurbhanj.

→ It ranks first in Iron ore production in India

→ The iron ore deposits of Odisha state occurs in five district zones.

1. Bonai (Sundargarh district) – Keonjhar Belt (Joda-Barbil)
2. Iyandhamandan of Bargarh district
3. Tomka – Daitari of Jajpur district
4. Gorumahisani – Badamparar of Mayurbhanj
5. Hirapur of Nabrangpur district

MANGANESE ORE

Koraput, Kalahandi, Bolangir, Keonjhar and Sundergarh district have manganese ore reserves.

→ Bonai of Sundergarh district has about 90% of Odisha's manganese ore reserves.

→ Iyondite (regional names) deposits – Sundergarh
Koduxite – Kalahandi
Khondolite – Koraput

CHROMITE

→ Odisha has 96% of India's chromite reserves.

→ Bulk of the product is exported to countries like USA and Japan.

→ It is found in Sukinda area of Jajpur district. ↳ 90% available

→ Keonjhar district chromite deposits are located in Boula-Nuasahi ultramafic fields.

NICKEL ORE

→ Odisha has 92% of country's Nickel ore reserves.

→ Sukinda valley and Similipal ultramafic are the major nickel producing areas of Odisha.

→ Jajpur and Mayurbhanj district lead in nickel ore production.

BAUXITE

→ Odisha has 52.5% of country's bauxite reserves.

→ Bolangir, Kalahandi, Kandhamal, Koraput, Malkangiri, Rayagada, and Sundergarh are bauxite producing districts of Odisha.

→ Gandhamardhan hills – between Bargarh and Bolangir region – famous for Bauxite.

COAL

→ Odisha has only Gondwana coal deposits.

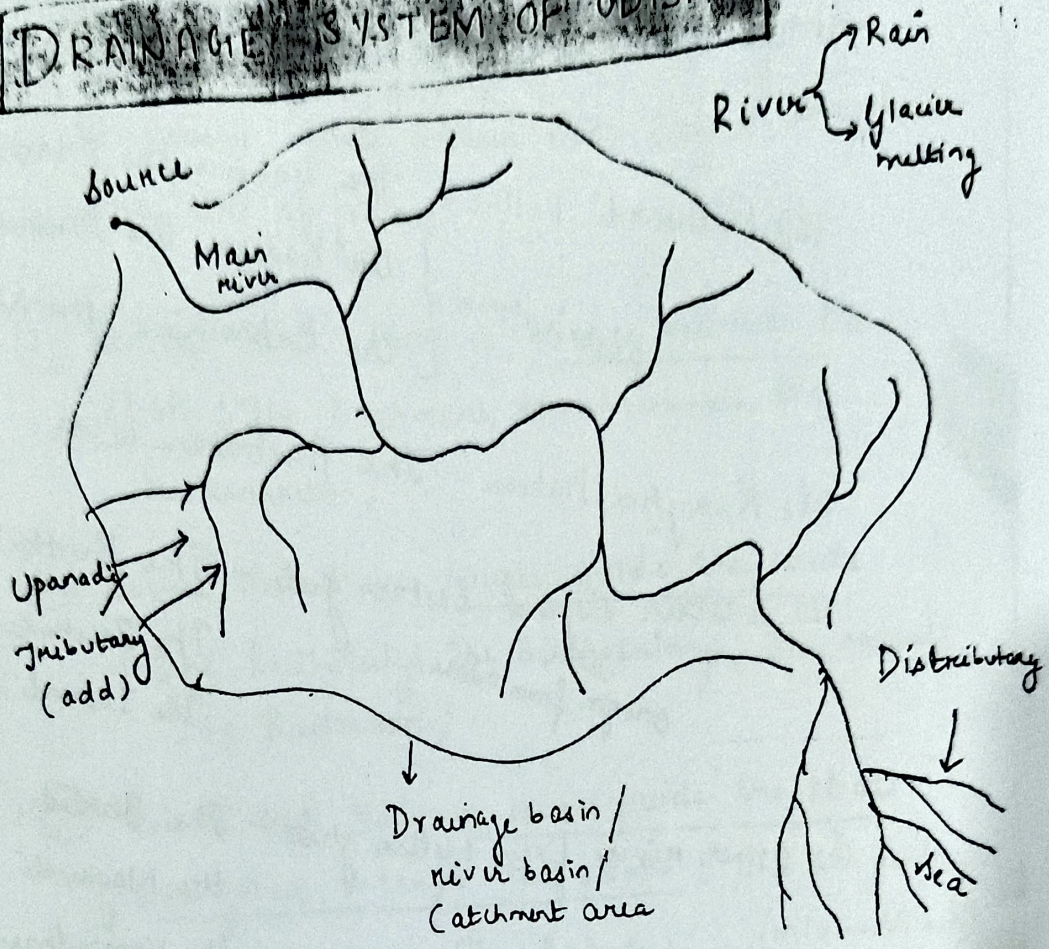
→ The Talcher coalfield is located in the Brahmani valley. This coalfield covers the parts of Angul, Sambalpur, and Dhenkanal districts.

→ Mahanadi valley (Ib valley) coalfields cover Jharsuguda and Sundergarh region.

→ Rampur-Hingir is one of the important coalfields of Odisha.

Coal
- Tertiary Coal (Lignite) (formation before 66.5 million years ago)
- Gondwana (Bituminous coal) (150 million yrs ago)

DRAINAGE SYSTEM OF ODISHA



Odisha has many important rivers which flow into the Bay of Bengal. These rivers are divided into six groups on the basis of their source or origin. They are as follows:-

(a) Chotanagpur plateau — The Subarnarekha and The Brahmani

Mayurbhanj, Jharsuguda, Keonjhar, Sundargarh of Odisha are also part of

(b) Amarkantak Plateau — The Mahanadi river sourcing

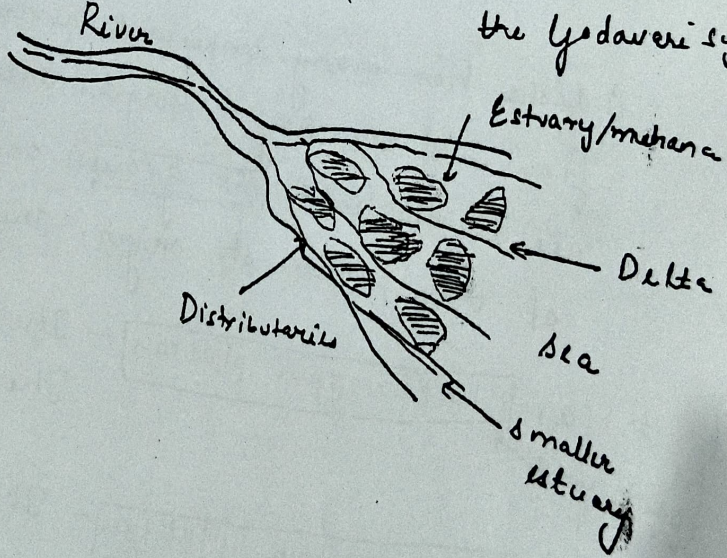
Prachi Kadua & Gobara 6ଟି
Dhana Ratna Nuchei ଅଛି।

(c) Mahanadi Delta – The Gobari, the Prachi,
distributaries { the Kadua, the Dhanua
the Ratnachira, the Nuna river

(d) Keonjhar Plateau – The Baitarani river

(e) Eastern slopes of Eastern ghats – The Budhabalanga
⇓
origin from Odisha
The Rushikulya,
The Salandi river

(f) Other rivers from eastern ghats – The Bahuda,
the Nagavali
the Vamsadhara
the Godavari system



There are four groups of river systems in Odisha that drain into Bay of Bengal. They are as follows :-

(1.) Rivers that have a source outside the state (The Brahmani, the Mahanadi, the Subarnarekha).

(2.) Rivers that have source inside the state (The Rushikulya, The Budhabalanga, The Salandi, The Baitarani)

(3.) Rivers that have a source inside the state but flows through other states (The Nagwali, The Vansadhara, The Bahuda). (mix with sea)

(4.) Rivers that have a source inside the state but tributaries that flows through other states (The Kolab, The Indravati, The Machhkund/Silerue ~~The Sileru~~) (Odisha → mix with other rivers of other state)

I Mahanadi River

→ It originate from the Sihawa hills of the Bastar plateau in Raipur district of Chattisgarh

→ Total length - 857 km
In Odisha it is - 494 km (longest of all)

→ Sorrow of Odisha due to its frequent flooding

→ Catchment area of this - 65,580 sq km × river in Odisha

→ Largest river in Odisha and the sixth largest river in India. & 3rd largest in peninsula after Godaba & Krishna

→ It flows through Chattisgarh and enters into Odisha near Padigan, ~~Chatti~~ Jharsuguda.

→ Jira and Jhaun are two right bank tributaries which drain the Baragarh plain.

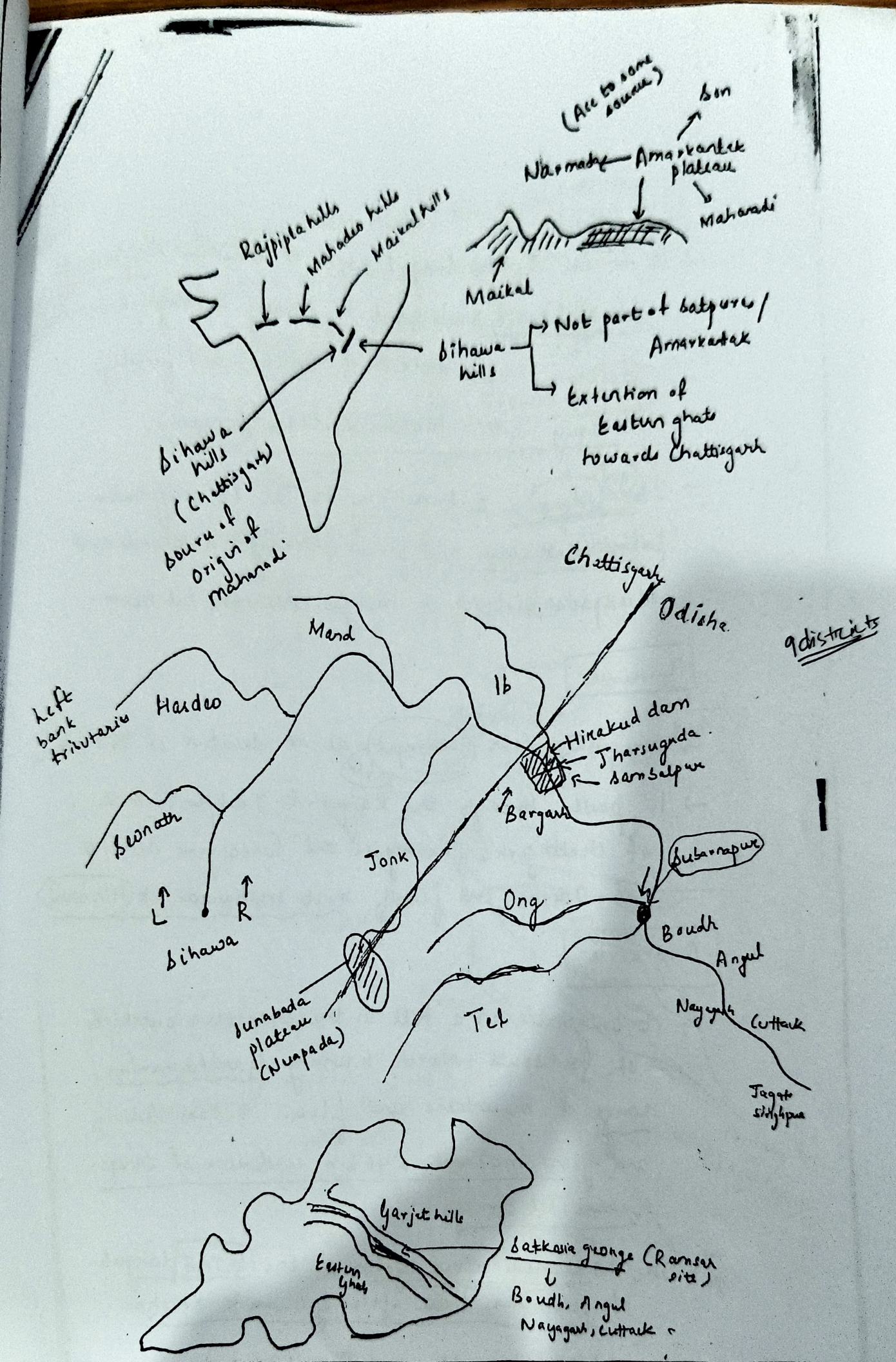
→ Tel river meets the mahanadi on its right bank, which is the ~~largest~~ longest tributary of this river.

→ Right Bank tributaries → Jonk, Ong, Tel, Parry

Left Bank tributaries → Seonath (longest tributary), Hasdeo, Mand, Ib, Kelo

Sig, Ha, Eb, Kh

→ Ib directly enters Hirakud dam flowing through Jharsuguda district.


(Arc to some source)
Son
Narmada
Amarkantak plateau
Maharadi
Maikal
Rajpipla hills
Mahadeo hills
Maikal hills
Bihawa hills
Not part of Satpura / Amarkantak
Extention of Eastern ghats towards Chattisgarh
Bihawa hills (Chattisgarh) source of origin of Maharadi
Chattisgarh
Odisha
9 districts
Mand
Ib
Left bank tributaries
Hardeo
Hirakud dam
Tharsugnda
Sambalpur
Bargarh
Seonath
Jonk
Subarnapur
L
R
Ong
Bihawa
Boudh
Angul
Tel
Nayagarh
Cuttack
Jagatsinghpur
Gandabada plateau (Nuapada)
Garjat hills
Eastern Ghats
Satkosia gorge (Ramsar site)
Boudh, Angul
Nayagarh, Cuttack

Tel river

→ It is one of the largest rivers of Odisha. Originating in Nabrangpur district & flowing through Kalahandi, Bolangir, Sonepur districts of Odisha and finally merging with Mahanadi near Sonepur.

→ The (gm?) Udanti is a tributary to Tel. It originates from Chattisgarh and flows through Kalahandi and Nuapada districts & merges with the Tel river.

Ib river

→ Originates in the hills near Pandrapet (of CG) at an elevation of 762 mts.

→ It passes through the Raigarh & Jashpur districts of Chattisgarh, Jharsuguda and Sundargarh districts of Odisha, and finally meets Mahanadi at Hirakud.

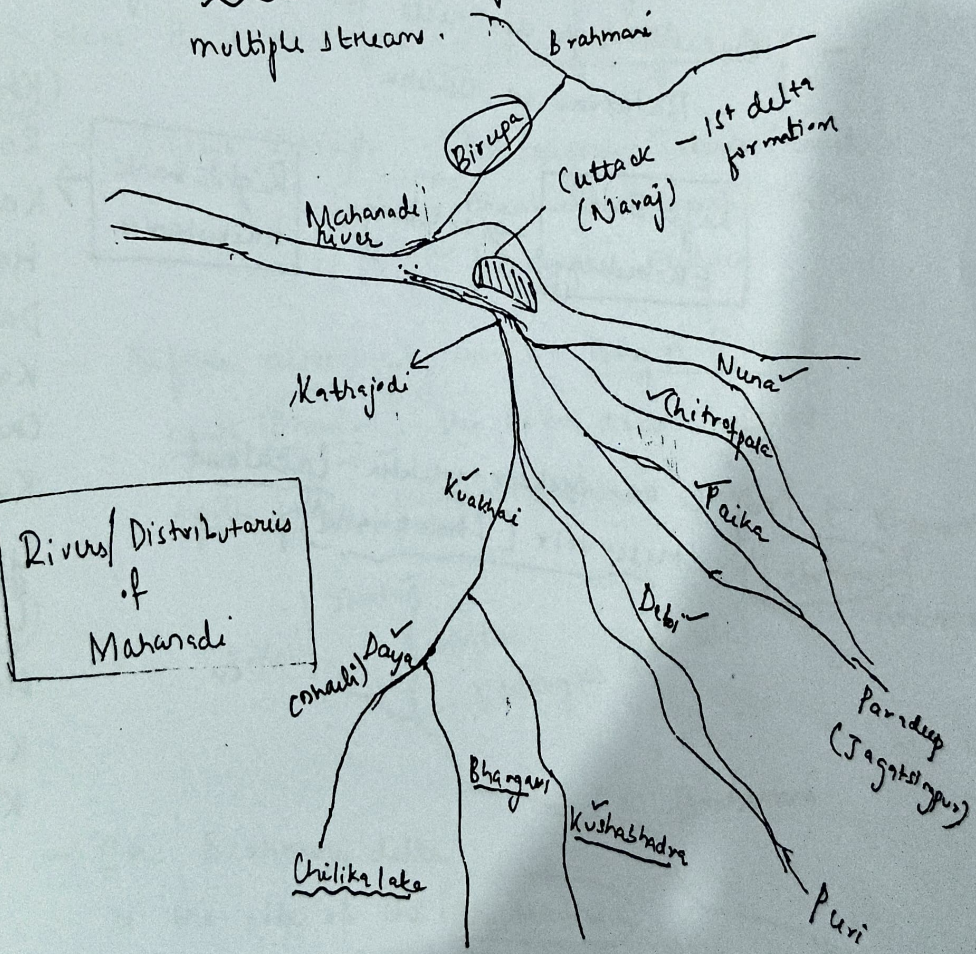
Ong river

→ It originates on a hill in the northern outskirts of the south-North running Gandhamardan range of mountains and flows across Odisha and joins Mahanadi 240 km upstream of Sonepur where Tel merges.

* The Mahanadi river system is the third largest of peninsular India after Godavari & Krishna.

* Dams / Barrages – Hirakud Dam (Odisha)
Gangrel Dam (Chattisgarh)
Dhudwa Dam (Chattisgarh)

- Beside these three rivers, the Mahanadi has tributaries in Chattisgarh, namely the Seonath, the Hasdeo, the Mand and the Jonk.
  LT (Seonath), LT (Hasdeo), LT (Mand), RT (Jonk)
- Mahanadi branches off around Naraj bridge which is approx. 10 km from Cuttack city, creating river Kathajodi and Birupa. The Birupa merges with the Brahmani and Kathajodi splits into multiple streams.



Rivers/ Distributaries of Mahanadi

2 Subarnarekha river

→ It originates from the southern slopes of Chotanagpur plateau in Jharkhand. (Piska/nagri near Ranchi)

→ Total length – 433 km
In Odisha it is – 70 km long

→ It is a multistate river which flows through Jharkhand, Odisha and W.B.

→ Forms boundary between Odisha & W.B

→ flows through districts of Mayurbhanj and Balasore in Odisha.

Left Bank tributary → Dulunga

Right bank tributaries → Kharkai, Roro, Kanchi, Harmu Na, Damra, Karru, Chinguru, Karakari, Gurma, Garrul, Singaduba, Kodia, Khaijori

→ Projects on Subarnarekha – Getalsud reservoir (Jharkhand)

3 Brahmani river

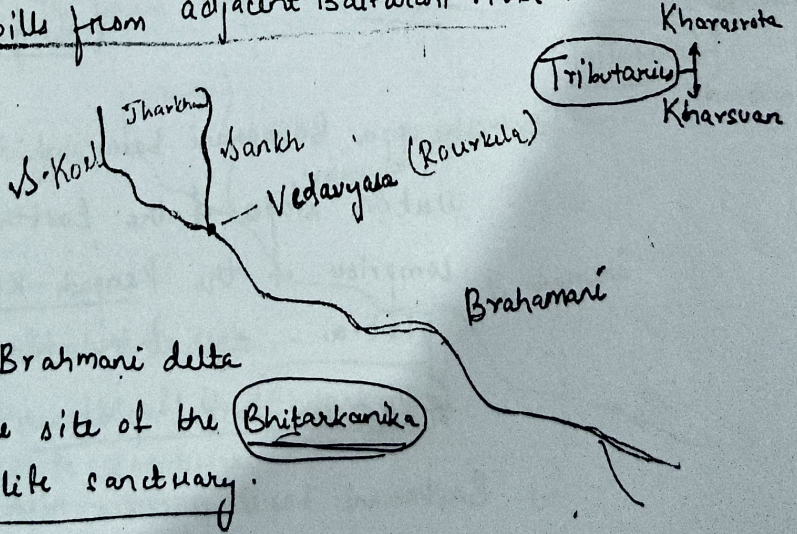
→ It originates from the mergence of two rivers namely the Sankh and the South Koel at Vedvyasa near Rourkela in Sundargarh district.

→ The total length - 799 km
In Odisha it is - 480km - It is the 2nd largest river in Odisha.

→ Brahamani forms a minor gorge at Rengali Angul
Here It is used for irrigation and Hydel power.

→ Flows through :- Sundargarh, Talcher (Angul), Dhenkanal, Deogarh, Jajpur Kendrapara, Cuttack.

→ Before discharging into the Bay of Bengal near Dhamra the river receives flood spills from adjacent Baitarani river.



→ The Brahmani delta is the site of the Bhitarkanika wildlife sanctuary.

[4] Baitarani

→ It originates from Gonasika or Guptaganga hills in Keonjhar district.

→ Total length - 365 km

→ Flows from the districts :- Keonjhar, Mayurbhanj, Sundargarh, Bhadrak, Jajpur, Kendrapara

→ Important tributaries - Salandi, Matai

→ It enters Bay of Bengal after joining Brahmani near Dhamra at Bhadrak district.

→ Projects on Baitarani - Salandi dam, Singharali

→ The upper Baitarani basin which lies on the western slopes of the Eastern ghats comprises of the Panposh-Keonjhar-Pallahara plateau - one of the two plateaus that make the central plateaus of Odisha.

→ Baitarani basin possesses rich mineral & agricultural resources thus offers an ideal ground for establishment of various industries.

3. Brahmani river

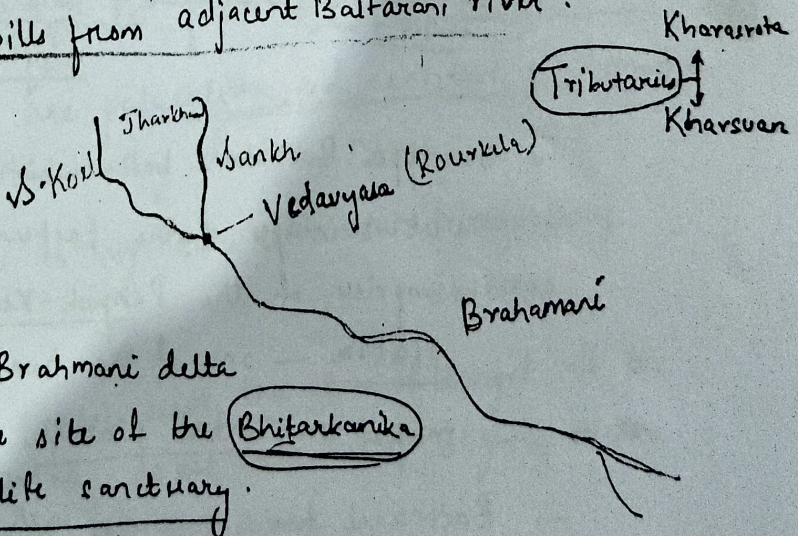
→ It originates from the mergence of two rivers namely the Sankh and the South Koel at Vedavyasa near Rourkela in Sundargarh district.

→ The total length – 799 km
In Odisha it is – 480km – It is the 2nd largest river in Odisha.

→ Brahmani forms a minor gorge at Rengali Angul & Here it is used for irrigation and Hydel power.

→ Flows through :- Sundargarh, Talcher (Angul), Dhenkanal, Deogarh, Jajpur Kendrapara, Cuttack.

→ Before discharging into the Bay of Bengal near Dhamra, the river receives flood spills from adjacent Baitarani river.



→ The Brahmani delta is the site of the Bhitarkanika wildlife sanctuary.

[4] Baitarani

→ It originates from Gonasika or Guptaganga hills in Keonjhar district.

→ Total length - 365 km

→ Flows from the districts :- Keonjhar, Mayurbhanj
Sundargarh Bhadrak
Jajpur, Kendrapara

→ Important tributaries - Salandi
Matai

→ It enters Bay of Bengal after joining Brahmani near Dhamra at Bhadrak district.

→ Projects on Baitarani - Salandi dam
Singhanali

→ The upper Baitarani basin which lies on the western slopes of the Eastern ghats comprises of the Panposh - Keonjhar - Pallahara plateau — one of the two plateau that make the central plateaus of Odisha.

→ Baitarani basin possesses rich mineral & agricultural resources thus offers an ideal ground for establishment of various industries.

5 Salandi River

→ It originates from the southern slopes of the similipal massif at the Meghasani mountain which lies in Mayurbhanj dist of Odisha.

→ River flows through Hadhgarh wildlife sanctuary, Keonjhar. ↳ wildlife - Salandi river

→ It is a tributary of Baitarini river thus it discharges its water into the Baitarini river, a few kms upstream of Chandbali - Bhadrak district

→ Salandi Dam / Hadgarh dam in Keonjhar is built on this river under the name Salandi project. Its water is used for irrigation purposes

6 Budhabalanga River

→ It originates from similipal massif, Mayurbhanj.

→ There are palaeolithic and neolithic sites situated in the valley of the river.

→ flows through two districts - Mayurbhanj
Balasore

→ It drains into the Bay of Bengal off the Balasore coast which lies slightly to the North of Chandipur.

→ Tributaries — Sone
Gangadhar
Catra

→ Budhabalanga rises in the similipal hills and plunges through Barehipani falls (399m) the second highest waterfall in India located in Similipal National Park.

1st highest waterfall Kunchikal falls (455m) located in Shivamogga dist, Karnataka

→ The Baripada Plateau is highly eroded because of Budhabalanga river.

7 The Rushikulya River

→ It originates from the Rushyamala hills (Daringbadi) of Kandhamal district, Odisha.

→ flows near — Berhampur, Chhatarpur, Aska, Bhanjanagar, Saroda

→ It is also known as lifeline of Ganjam dist. The river has no delta at its mouth.

→ Right bank tributaries → Padma, Ghodahada
Left bank tributaries → Baghua, Dhanei, Badanadi

→ Lakhs of Endangered Olive Ridley turtles flock the Rushikulya river mouth for their annual mass nesting.

8

Indrawati river

→ It originates from a small rivulet of Dandakaranya range of Eastern Ghats in Kalahandi, Odisha.

→ Total length – 530 km
In Odisha it is – 16.7 km

→ flows in South-East direction, then it flows westward through the Kalahandi, Nabrangpur, and Koraput districts.

→ forms boundary b/w Odisha and Chattisgarh and enters the Bastar dist of Chattisgarh.

→ meets Godavari river at the trijunction of Chattisgarh, Maharastra, and Telangana.

→ Currently, Upper Indrawati project is the largest power producing dam in Eastern India with a capacity of 600 MW in Kalahandi region.

↓
Indrawati Dam

[redacted]

9 Kolab River

→ It originates from the Sinkaran hills of the Eastern Ghats in Koraput district

→ Kolab dam is house to the upper Kolab Hydro Electric project.

→ The river meets with Godavari river in the name of Sabri river in Andhra Pradesh

→ It forms common boundary b/w Chattisgarh and Odisha states and later enters into Andhra Pradesh to merge with river Godavari.

→ It is a tributary of Godavari river

10 Machkund river / Sileru river

In Odisha

In Andhra Pradesh

→ Sileru river rises as Machkund river in the Eastern Ghats in the North-Eastern Dandakaranya, Andhrapradesh

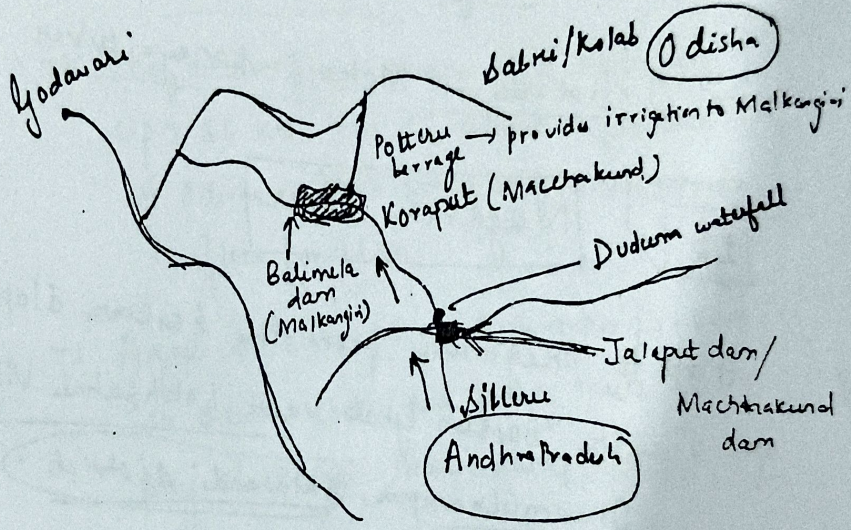
→ It flows northwards into Jalaput reservoir on the border with Odisha state.

The Machhakund river is known as Sileru river from this reservoir.

→ Machhakund (Duduma) Hydroelectric project is located near Duduma falls in Koraput. Duduma waterfalls is on the Machhakunda river.

→ Balimela reservoir in Malkangiri has been created to generate hydel power over Silleru.

→ Tributaries - Potteru
Silleru



11 Vamsadhara river

→ It originates from the Niyamgiri hill/ Thuamul Rampur in the Kalahandi district of Odisha

→ It is a major East flowing river b/w Mahanadi and Godavari rivers, in Southern Odisha and Northern Eastern Andhra Pradesh.

→ flows through the cities of Paralakhemundi, Gunupur, Bissam Cuttack

→ The river finally drains into Bay of Bengal at Kalingapatnam in Andhra Pradesh.

→ Tributaries — Mahendratanaya river.

12 Nagavali river

→ It originates from the Eastern slopes of the Eastern Ghats near Lakhsahal Village, Jhumulkampur, Kalahandi district.

→ Its other name — Langulya river

→ The river passes through Vizianagram and Srikakulam & finally drains into Bay of Bengal.

→ Tributaries — Jhanjavati, Barha, Baldiya Satnala, Sitagurha, Srikona Vonigedda, Vegavati etc.

13 Bahuda River

→ Originates from the Singharaj hill of the Eastern Ghats (Khondalite terrain) in Gajapati district of Odisha

→ length - 96 km

→ Sometimes referred to as smallest river of Odisha

→ The river flows in the N-E direction upto 55 km, then SE direction for 17km in Odisha. Then enters into Andhra Pradesh to flow for 18 km

→ Again it turns in N-E direction for 6km in Odisha state and finally meets at the Bay of Bengal near Surapurpeta village in Odisha.

[redacted]

Annual rainfall in Odisha - 150 cm (148.9 cm)

4 type of forest
- → Semi Evergreen – Nearly 200 cm rainfall
- → Tropical forest → Moist deciduous (125 cm ↑ rain)
  - → Dry deciduous (< 125 cm)
- → Mangroves

Drought Prone dists = Bolangir, Bargarh, Nuapada, Kalahandi, Phulbani

The recorded forest area of the Odisha state is 61,204.17 sq km which constitutes 39.31% of the state's geographic area.

FORESTS OF ODISHA

The Northern Tropical Semi-Evergreen Region

* These occur in the lower hills and valleys above 600m elevation in the forest divisions of Mayurbhanj, Dhenkanal, Athgarh, Puri, Nayagarh, Parlakhemundi, Koraput and Kalahandi, Kandhamal.

- Imp tree species:- Arjun, Mango, Mankarkundu, Champa, Rai, Manda, Nageswar

- According to the WWF, 96% of the ecoregion's area has been cleared, and only 4% remains in the original semi-evergreen rain forest.

Reserve forest
↳ No public entry is allowed for timber cut/ grazing.
Protected forest
↳ allowed
Unclassified
even cutting of trees is allowed

Tropical Moist Deciduous forests (Also known as Monsoon forests) → covers 80% of the state area

- Rainfall → More than 125cm
- These occur in the lower elevations in Mayurbhanj and Keonjhar districts and districts bordering on Chattisgarh and Andhra Pradesh of India.
- The top canopy is formed by **Sal** and its allies Asan, **Piasal**, Kurum, Kangra and Dhawra. and **Daba bamboo**.

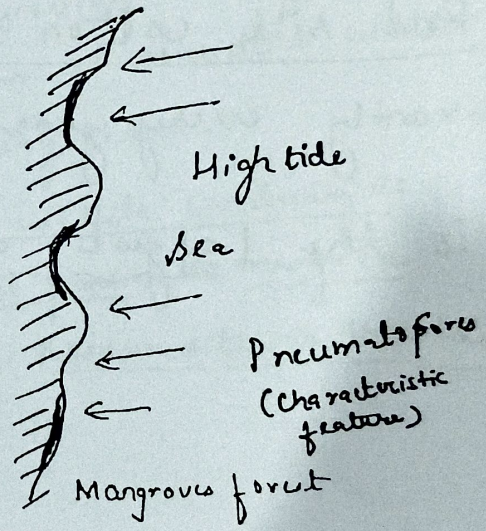
Tropical Dry deciduous forests

- They occur in the drier central and Western areas in the parts of Bolangir, Kalahandi, Khaniar (Nuapada), Deogarh, Gobindpur (Cuttack) divisions of state.
- **Teak instead of Sal** and **Salia bamboo instead of Daba bamboo** predominate in these forests.

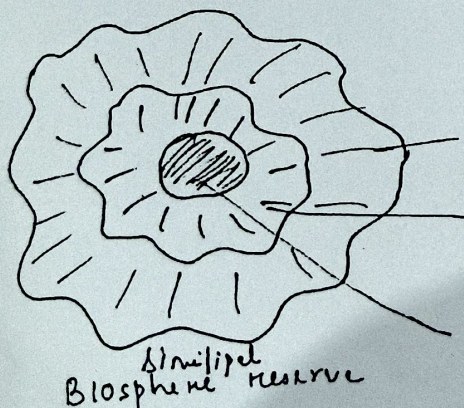
yaraa,

Tidal Mangrove forests / Swamp littoral forest

- They are limited in degree, scattered and confined to the sea coast, especially in **Bhitarkanika** and the **Mahanadi delta**.
- The characteristic tree species are :-
  Kanika, Sundari, Bani
  Rai, Guan
- As **Hental grows here abundantly** in clusters, the mangroves forests are called Hental Van.



* District of Odisha having maximum forest cover – **Kandhamal** (76%)
  Minimum = Bhadrak (0.34%)



Manipulation zone (settlement, quarrying, mining)

Buffer zone (Human activity limited, Research activity)

Core zone (No human activity allowed)

Similipal tiger reserve and National Park

→ It is in Mayurbhanj district is endowed with high peaks of Khairiburu, Meghasani and rocky cliffs like Yarapati.

→ The name Similipal is believed to be derived from the abundance of Semul or Red silk cotton trees which bloom vibrantly every year.

→ It is the largest wildlife sanctuary of Odisha.

2. Bhitarkanika wildlife sanctuary

→ located in the estuarial region of Brahmani – Baitarani in the N-E place of Kendrapara district.

→ covers an area of 672 sq km of Mangrove forests and wetland.

→ famous for the Giant Estuarine Crocodile

→ floral diversity in Bhitarkanika is 2nd largest after Papua New Guinea.

→ The heronry at Bagagahan / Mathakadia (largest in Asia) provide nesting space to a large number of resident water-birds during rainy season.

→ Bhitarkanika is a wildlife sanctuary as well as a national park. Its mangroves are recognized as Ramsar site in India.

3. Gahirmatha Wildlife Sanctuary

→ is a single-handed mass nesting spot in Indian ocean region and the only turtle sanctuary in Odisha. It is World's largest nesting beach of Olive ridley sea turtle. → mass nesting → Arribada

→ The olive ridley travel across the South pacific to breed on the coast of Gahirmatha.

Live Ridley IUCN status: Vulnerable

→ Olive ridleys typically nest during nighttime.

→ Gahirmatha was declared a turtle sanctuary in 1997 by Odisha.

→ 1st and only marine sanctuary of Odisha as well as the second largest wildlife sanctuary of Odisha.

4. Chilika Sanctuary (Khaunda, Puri & Ganjam)

→ Chilika lake in Odisha is Asia's biggest Inland brackish water lake (lagoon) studded with few tiny islands.

→ This pear shaped lake, separated from the BOB also imbibes one of the most supportive ecosystem in the name of Chilika wildlife sanctuary in the region. It is also popularly known as Nalabana Bird sanctuary.

→ The large Nalabana Island covering 15.53 sqkm in the lagoon area was declared a bird sanctuary in 1987.

→ attracts waterfowls of different species

→ 1st Ramsar site of India along with Keoladeo N.P in Rajasthan in 1981.

:. Baisipalli wildlife sanctuary :

→ Spread over entirely in Nayagarh district

→ It is situated in the close proximity of the Satkosia gorge sanctuary (Ramsar site) the Baisipalli is lying in the south.

→ Rich in flora and fauna, this place borders with the mahanadi river along the Satkosia gorge, which also includes the Gharial crocodile sanctuary of Tikarpara of Odisha (Angul).

IUCN status
Gharial (CR)
Mugger (VU)
Salt water (LC)

:. Satkosia Gorge

→ owes its name to the narrow stretch of river mahanadi that is 'Sat-Kosh' or seven miles long near Tikarpara, 60 km South of Angul.

→ Spreads out in four districts — Angul
Boudh
Cuttack
Nayagarh

→ It is also a tiger reserve.

7. **Balukhand Konark Sanctuary**

→ is situated along the sea coast b/w Puri & Konark

→ is covered by plantation of Casuarina and Cashew trees.

→ Olive ridley sea turtles are seen nesting in the beach — in Devi river Estuary → (Mahana) → Aribada mass nesting

→ is traversed by the rivulets such as Nuanai river, Kusabhadra river, Kadua river, and Prachi river.

Aribada
- → Gahirmatha, Kendrapada
- → Devi Estuary, Puri-Jagatsingpur
- → Rushikulya Estuary/mouth, Ganjam

8. **Chandaka-Dampara Sanctuary**

→ is located in North-western fringe of Bhubaneswar.

→ comprises major forest area i.e notified forest blocks of Chandaka wildlife division

→ also known as Bharatpur sanctuary

→ primarily to preserve wild elephants and elephant habitat.

9. [illegible wildlife sanctuary]

→ imp. site for its wide conservation of wildlife & its habitat.

→ The Hirakud reservoir attracts large number of migratory birds during winter season

10. [Hadgarh wildlife sanctuary]

→ lies in the district of Keonjhar & Mayurbhanj. It is near the Hadgarh reservoir of Salandi dam.

→ The salandi river passing through its forest is its lifeline.

→ The salandi river is home to mugger Crocodile.

11. [Kapilash Wildlife sanctuary]

→ is in Dhenkanal attracts tourists because of its unique floral, fauna & geomorphological diversity

→ A temple of lord Vishwanath also present

→ Gharial Breeding centre & science park also is attraction for tourist.

12. The Kanlapat sanctuary

→ located in Kalahandi South division 12km from Bhawanipatna covering a dense patch of wet green dry deciduous forest.

→ Beautiful Waterfall Phurlijharan - also developed as for picnic spots.

13. Khalasuni wildlife sanctuary

→ With the adjoining Badrama wildlife sanctuary, this sanctuary offers a good habitat with carrying capacity of a large no. of Elephants of the region.

→ located in Sambalpur

→ Khalasuni - Satkosia corridor is also an important Elephant corridor in the state. The sanctuary is a part of Sambalpur Elephant reserve also.

14. **Badrama wildlife sanctuary**

→ is also known as 'Ushakothi sanctuary' is situated in Sambalpur district towards Deogarh on NH-6.

→ forms a significant part of Sambalpur Elephant reserve.

15. **Kuldiha wildlife sanctuary**

→ Kuldiha sanctuary area, adjoining Nilgiri forest in the North and Mayurbhanj forest in west is a typical representative of mixture of peninsular (coastal) Sal forest and moist mixed deciduous forest.

→ present in Balasore region.

→ linked to similipal Biosphere reserve through Hadgarh wildlife sanctuary also forms a part of Mayurbhanj Elephant reserve.

16. Sunabeda wildlife sanctuary

→ in Nuapada district is largely a grass-covered plateau adjoining Udanti and Sitanadi sactuaries of Chattisgarh

→ The sanctuary is an attraction to ecotourists because of waterfalls, caves, archaeological sites at Giribaman, Jumlagarh fort and Muraguda.

→ It is a tiger reserve.

17. Kotagarh wildlife sanctuary

→ located in the Baliguda subdivision of Kandhamal district.

18. Lakheri-Valley sanctuary

→ located in the Gajapati district is prosperous with tropical mixed deciduous forest.

→ Can be approached from Berhampur, Taptapani (famous for its hot water spring) & Chandragiri.

19. Nandankanan sanctuary

→ include both Nandankanan Zoological park (including Kanjia Lake) & State botanical garden.